ENVIRONMENTAL GUIDELINES FOR DECOMMISSIONING OF SERVICE STATIONS

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INTRODUCTION

These guidelines have been designed to assist companies or individuals involved with the decommissioning of service station facilities. The term "Decommissioning" as used in this guideline means dismantling, environmental cleanup and preparation for disposition of the property. The guideline does not consider "mothballing" which is at best a short term deactivation of a facility while decisions are being taken on its future.

It must be noted that the variety of types and ages of facilities require an equal variety of approaches to decommissioning. Thus these guidelines do not promote only one process or procedure but make use of the proven effectiveness of a joint, cooperative, flexible approach. In particular phasing of studies, through progressive investigations, is recommended to save time and costs while determining which situations demand further action. Thus the guideline should assist the users in implementing their own site specific programs.

The objective of an effective "Decommissioning" program is to leave and/or sell properties in a condition that will be appropriate to the future land use of the site and surroundings and will provide to a vendor and purchaser information on the status of the site at time of sale. A properly designed, executed and documented program will serve to reduce a company's short and long-term liabilities. While these guidelines focus on "decommissioning", owners of sites that will be sold for continuing petroleum use may wish to utilize the principles herein to provide an understanding of the site status or site liability prior to sale.

Although the provincial authorities have been consulted in drafting these guidelines, contact with regulatory authorities is advised to ensure an understanding of their individual requirements and procedures as they can differ substantially. It is not the purpose of these guidelines to itemize the individual requirements of all provinces.

It is recommended that appropriate authorities (i.e. Local Municipality, Provincial Environmental Ministry, Fuel Safety Branch, Fire Marshall, etc.) be involved with the "Decommissioning", at an early stage, if either a rezoning is probable, spills/leaks are detected or any approvals are to be sought to demonstrate a clean site. The authorities should then be kept informed of key steps in the clean-up program.

All soils contaminated above regulatory requirements must be either treated on site, or removed, in accordance with legal requirements. It is recommended that authorities be consulted and approval obtained as to appropriate in-situ recovery, disposal or treatment options.

Documentation and photographs of the property both before, during and after all decommissioning steps have been completed are useful record keeping techniques that can be considered throughout the steps identified in these guidelines.

INTRODUCTION

Les présentes lignes directrices sont adressées aux compagnies ou aux individus qui s'occupent à désaffecter des installations de station-service. Le terme "désaffectation" (decommissioning en anglais) signifie aux fins de la présente ligne directrice le démantèlement, le nettoyage environnemental et la préparation de la propriété en vue de sa cession éventuelle. La présente ligne directrice ne se rapporte aucunement à la "mise en réserve" (mothballing) laquelle ne constitue qu'une mesure à court terme prise pendant que l'on décide de l'avenir de l'installation.

Il faut noter que les types et les âges variés des installations exigent une gamme de méthodes de désaffectation toute aussi variée. Donc, ces lignes directrices ne proposent pas un seul processus ou une seule procédure, elles font appel plutôt à une approche conjointe, coopérative et flexible dont l'efficacité a été éprouvée. En particulier, il est recommandé que les études soient effectuées par phases au moyen d'enquêtes progressives afin d'économiser du temps et de l'argent pendant qu'on décide des situations qui méritent une action supplémentaire. La ligne directrice devrait alors aider les utilisateurs à mettre en oeuvre leurs propres programmes spécifiques.

Le but d'un programme efficace de "désaffectation" est de laisser et(ou) vendre les propriétés dans un état qui conviendra à l'aménagement futur de l'emplacement et des environs et de fournir au vendeur et à l'acheteur les renseignements pertinents au moment de la vente. Un programme judicieusement conçu, exécuté et documenté servira à réduire la responsabilité de la compagnie à court et à long termes. Bien que ces lignes directrices visent surtout la désaffectation, les propriétaires d'emplacements à vendre dont l'usage continuera à impliquer les produits pétroliers pourraient vouloir utiliser les principes énoncés ici pour documenter l'état de l'emplacement ou la responsabilité afférente à l'emplacement avant la conclusion de la vente.

Bien que les autorités provinciales ont été consultées au cours de la rédaction de ces lignes directrices, il est conseillé d'établir contact avec les autorités de réglementation afin d'être assuré de bien comprendre leurs exigences et procédures individuelles car celles-ci peuvent varier considérablement. Ces lignes directrices ne cherchent pas à énumérer en détail les exigences de toutes les provinces.

Il est recommandé que les autorités compétentes (c.-à-d. municipalité, ministère provincial de l'environnement, Direction de la sécurité des combustibles, prévot des incendies, etc.) soient impliquées très tôt dans tout projet de désaffectation lorsqu'il est probable que le zonage sera modifié, des déversements ou fuites sont détectés ou il sera nécessaire d'obtenir des autorisations pour attester le nettoyage de l'emplacement. On devrait par la suite informer les autorités des étapes-clés du programme de nettoyage lorsqu'elles sont franchies.

Tout le sol contaminé au-delà des limites réglementaires doit être, soit traité sur les lieux, soit enlevé de l'emplacement en conformité avec les exigences légales. Il est recommandé que les autorités soient consultées et que l'on

obtienne leur approbation quant aux options de récupération in situ, d'élimination ou de traitement disponibles.

De la documentation et des photographies de l'emplacement prises avant, durant et après l'achèvement de chacune des étapes de la désaffectation sont un moyen utile de suivre le progrès du programme dont on peut envisager l'emploi à tous les étapes identifiées dans ces lignes directrices.

RECOMMENDED DECOMMISSIONING STEPS

OVERALL PROCESS

- o END USE DECISION
- o SITE DATA BASE
- o DISMANTLING
- o ENVIRONMENTAL INVESTIGATION & CLEANUP
  - FIELD INVESTIGATION
  - DEVELOP CLEANUP OPTIONS & PLAN
  - IMPLEMENT PLAN
  - VERIFY SATISFACTORY CLEANUP
  - SIGN-OFF
- o DISPOSITION OF PROPERTY

While the above steps indicate a sequential approach, steps taken often require recycle back due to the iterative nature of decommissioning decision making.

EXPLANATORY NOTES FOR DECOMMISSIONING STEPS

1.0 END LAND USE DECISION

- End land use refers to the next intended land use and should be determined early in the decommissioning process as it will determine degree of clean-up and clean-up procedures. When the specific end land use is not known the existing zoning or rezoning classifications should be considered. The following are considerations in zoning:

- Urban site usually becomes residential or commercial.

- Rural site usually becomes agricultural or commercial.

- Result of land use change:

  i) Residential
  - used for housing/parkland
  - unlimited public access
  - possible direct/indirect intake of soil contaminants by humans, pets, plants
  - odour and aesthetics
  - present or future groundwater use.

  ii) Commercial
  - used for business offices/dealers
  - excavation of soils for building construction
  - possible long-term respiratory intake of contaminants
  - odour and aesthetics
  - potential groundwater use.

  iii) Agricultural
  - used for growing plants for human/animal consumption and/or building shelters for humans and/or animals
  - used for greenhouses
  - possible uptake of soil contaminants by plants
  - possible indirect/direct uptake of soil contaminants through plant consumption/breathing
  - use of groundwater for human or animal or plant (irrigation) consumption.

2.0 SITE DATA BASE

Purpose

- Identify potential problem areas.
- Plan environmental investigation and cleanup.

Method

- Should take place as soon as it is known property will be disposed of. Would involve both a review of historical records and reports, including a product inventory analysis, interviews

with knowledgeable staff and station operator and preliminary site assessment (see Section 4.0).

2.1 Physical Site History

- Include any information on previous ownership and land usage.
- Include description of the original facility site and history of growth/changes.
- Detail major spills or leaks.
- Identify all current and past, above and below ground components and waste areas on a current site drawing.
- Gather available topographical, geological, and hydrogeological information (construction files, existing background baseline testing).

2.2 Current Facility Status

- Include a completely updated site plan and/or blueprints showing main components.
- Include components above/below ground.
- Determine existing zoning/adjacent zoning.
- Review operating procedures for impacts.
- Identify waste storage locations.
- Identify loading/unloading procedures.
- Review underground storage tanks' reconciliations.

2.3 Inspection Visit

- "Walk-through" inspection.
- Include facilities operations personnel and an environmental specialist (could be company or consultant).
- Pinpoint areas of potential contamination.
- Develop a general impression of facility (take "before" photos).
- see also 2.4.

2.4 Suggested Checklist for Areas of Concern

- Underground storage tanks and their filling area.
- Underground piping.
- Underground oil separators.
- Storage and disposal of automobile additives (e.g. oil, brake fluid, etc.).
- Storage and disposal of used automotive parts (e.g. brake linings, used batteries).
- Large fractures or potholes in the pavement which may indicate migration route for spills.
- Service bay cleanliness/integrity of concrete (indicating potential for contamination below floor).
- In-ground hydraulic hoists.
- On-site disposal and storage of used oil and sludges.
- Use or storage of carbon tetrachloride (CCl_4) fire extinguishers (past or present).

3.0 DISMANTLING

Purpose

To remove all equipment and structures from site and to dispose or reuse safely.

Method

Use qualified contractors (some provinces require licensed contractors) in conjunction with inspectors to ensure proper identification of contaminated materials and haulage to approved receptors by certified haulers.*

3.1 Preliminary Considerations

- Transport all remaining products to another, similar facility.
- Drain all piping and tanks thoroughly (to remove product and sludges) with haulage to approved slop/waste location(s).*
- **- Call utilities and have all locations marked before dismantling.
- **- Strictly follow precautions for working near flammable vapours/liquids.
- **- Prohibit entry into storage tanks.
- **- Identify any potential sources of lead (e.g. significantly contaminated soils, leaded sludges or lead paints on any vessels to be cut).
- Do not mix leaded sludges with other materials prior to haulage.
- Consider points of government interface (Attachment 3 provides examples) particularly for waste disposal as acquiring approvals (e.g. for soils which are "leachate toxic") can be time-consuming.

3.2 Underground Storage Tanks
Steel

1) Unearth top and sides of tank and carefully remove tank from excavation so walls and floor remain visible for inspection (e.g. see Attachment 1).

2) Closely examine tank for leaks and corrosion; examine excavation for signs of gasoline/oil contamination (see 4.3, (i)).

3) Use a hand pump to remove any remaining liquid in tank, if necessary. Remove any sludges in the tank and dispose of sludges at an approved location.

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* Refer to PACE Marketing Waste Guide, 87-6, 1988

** These are examples, specific safety considerations - should be defined in contractors' agreements.

4) Plug or cap all holes for degassing - if corrosion leak holes are present, make a note of this and use screwed (boiler) plugs on these areas - using one plug with a one eighth (1/8") inch vent hole for pressure release.

**5) Degas prior to transportation (for specific details see API 1604):
   a) Fill with one (1) kg of dry ice pellets per 1000 litre of tank capacity (2.0 lb/200 Imperial gallons), or
   b) Ventilate tank using a small gas exhauster operated with compressed air; or
   c) Steam tanks thoroughly; and
   d) Check to ensure vapors are below LEL with explosimetre.
   e) Monitor surrounding area for petroleum vapour build-up during degassing process.

6) After completion of degassing puncture tank with many holes in order to render it unfit for further use.

7) Label tank as follows (lettering to be minimum 2.5 cm (1 inch))

   "DANGER FLAMMABLE VAPOURS! PREVIOUSLY CONTAINED LEADED GASOLINE/FLAMMABLE LIQUID. DO NOT USE TO STORE FOOD OR DRINKING WATER!"

8) Dispose of tank as scrap metal or transport tank(s) to a licensed landfill or storage site as required by local regulations.

   N.B. Do not allow tank to sit overnight, after degassing, as flammable vapours within the walls may be released; transport immediately after degassing and puncturing.

In certain circumstances fibreglass or cathodically protected steel tanks may be reusable for motor fuels. Removal should follow steps 1, 2 and 3 above. The tank should be degassed according to step 5 and then removed for testing according to applicable codes before reuse.

3.3 Buildings

A. If the building will not be re-used:

   i) Remove all internal above ground facilities which have contained or handled petroleum products, wastes or automobile additives. These facilities may be transported and re-used at another service/gas station.

   ii) Demolish building and remove floor.

iii) Remove building materials to a licenced municipal landfill. Where uncontaminated, wood or metal may be reused; brick or concrete could be used for road bedding or rip rap. NOTE: Oil stained concrete may be prohibited from certain uses (e.g. rip rap, fill) and may have to be sandblasted.

iv) Inspect soils and clean up contaminated soil as required (see Section 4.0).

B. If the building will be sold and re-used:

i) Utilize an acceptable leak detector test for all heating oil tanks and lines to determine if leakage exists.

ii) If contamination is indicated (i.e. leak detector test has failed) remove tank(s) and lines, remove floors in order to test soil beneath them or drill holes in the floor to obtain soil samples.

iii) Clean-up contaminated soil as required (see Section 4.0).

3.4 Driveway Areas, Aprons, Island

1) Remove pumps and disconnect wiring.

2) Remove concrete island and aprons as subsurface contamination is usually present.

3) Unearth piping and catch basins (can have French Drain effect) - inspect pipe trenches and surrounding soils for gasoline/oil contamination (see 4.1).

4) Remove water/oil separator, piping and catch basins if not needed for future land use. Degassing may be required.

NOTE: Water/oil separator must be pumped clean and oils and sludges must be hauled to an acceptable location.

3.5 Additional Considerations

- Remove any deteriorated fencing, guard rail or brick block fencing.
- Thoroughly empty and clean septic tank. Remove from site or fill with soil unless intended for future, similar use. Closure of onsite sewage lagoons should be discussed with appropriate environmental officials.
- Block off site with prefab curbing to prevent uncontrolled parking or other use.
- Plug or cap any groundwater wells used for drinking water.

4.0 ENVIRONMENTAL INVESTIGATION AND CLEAN-UP

Purpose

To undertake a program that will sufficiently describe the environmental conditions at the facility such that appropriate remedial actions can be implemented.

Method

The site investigation often requires a specialist to document the quality of the on-site environment and recommend on the scope and degree of clean-up. This specialist may be a qualified in-house staff or consultant.

- This part of the decommissioning process should begin at the same time as the site database investigation and continues in phases until clean-up is satisfactory.
- Use the site database to initially determine the degree of testing required to secure site.
- Site database determines:
  - where to test
  - what to test (soil, surface waters, groundwaters)
  - what to test for (suspected contaminants)
  - criteria required for acceptable levels of contaminants

4.1 Field Investigation

- Determine which contaminants are present on site and where the contaminants are located. Specific concerns include mineral oil and grease (as O&G or TPH), lead, asbestos, and any other contaminants identified through the data base (section 2.0).

  i) Background Baseline
  - Measure contaminant levels at on or off site locations which appear to be unaffected by the operation.

    Note: Not always necessary; depends on:
    - criteria for clean-up (check for existing data base covering contaminants present on site)
    - end land use decision
    - age of facility
    - amount of spillage/leakage.

  ii) Phasing Program
  - where there is sufficient lead time preliminary programs (see Attachment 1) can save money and need be followed by more detailed investigations only as the results indicate.

- Sampling should be undertaken during the dismantling as potentially contaminated areas will be exposed (tank hole, under pads etc.).

iii) On Site Sampling Methods

- The consultants and environmental staff will decide on the sampling program and methods. It is important that approved or standardized sampling and analytical procedures be followed.
- Depending on the site data base, methods can typically include:
  - soil gas survey to indicate potential extent of surface/subsurface gasoline contamination including site perimeter, pump islands, tank base and spill areas. This system is appropriate where soils are sufficiently sandy and groundwater is within 4-5 meters of surface. It becomes less valid where groundwater is deep or soils are of a much less permeable nature. Other factors effecting soil gas measurements include soil moisture content, temperature and barometric pressure.
  - soil samples from areas suspected of receiving spills or wastes. Those would initially include surface and subsurface, at about 20 cm depth, to determine migration. Further sampling (main program) would follow any contamination to depth.
  - pits or trenches to visually inspect for soil discoloration or, take at depth samples.
  - placement of wells to groundwater. The cores should be logged for contamination and groundwater should be sampled for free floating or dissolved TPH as well as benzene, toluene, xylene, MTBE.
  - EM (electromagnetic survey) or geomagnetic survey if age of facility (or history) indicates potential for unidentified U/G tanks.

The program should also take into account any other, similar facilities nearby, the condition of the underground storage tanks, and the methods of waste disposal used during the facility's operation.

Once a preliminary program has been completed, proceed with dismantling and data analysis. If contaminated areas have been identified return to fully delineate contaminated areas primarily using soil sampling at depth through coring or trenching and further groundwater wells.

iv) Analytical Program

- The results of the analytical program will help to focus the cleanup program. Therefore you must know accurately which contaminants are present and their concentrations.
- Determine practical detection limits for the contaminants for which there are cleanup criteria (see Section 4.2).

- When testing for organics, consider first testing for TOC (total organic carbon - as an indication of all organic carbon contamination), and then progress as necessary to mineral oil and grease (as the portion of TOC from petroleum sources, minus the aromatics), TPH as a full spectrum indicator of hydrocarbon and finally, as may be required, test for target contaminants according to the substances used on site and/or provincial requirements.
- Sampling, storage and analytical procedures must be recognized by government agencies - use qualified specialists and require use of these accepted procedures in contracts including QA/QC.

4.2 Clean-Up Planning

Check provincial regulations and/or guidelines for clean-up requirements consistent with designated end land use.

i) Clean-Up Criteria

- For the major contaminants of concern levels acceptable in certain Canadian jurisdictions, for residential or commercial land use, are indicated in Attachment 2.

- Special considerations, that would be included in the development of criteria, where not available, include:

  - emphasis on existing regulations regarding acceptable contamination levels;

  - the uptake of contaminants by plants grown on contaminated soil;

  - the transfer of contaminants up the food chain by grazing animals;

  - the use of vegetation for direct human consumption;

  - possible impacts on surface and groundwater quality;

  - the exposure potential for airborne or ingested contaminated soils;

ii) On site testing

- To carry out testing while remediation is in process is an emerging science; however there are means available for on site analysis of groundwaters and in addition the use of sniffers directly in soil gas, or as a part of "jar" or "bag" test, also have

the potential for good preliminary information. Levels of approximately 200-300 ppm in such soil gas testing can be indicative of a site which will be aesthetically appropriate for residential/parkland zoning or where building excavation may take place. Higher values indicate acceptability for other uses (e.g. commercial, slab-on-grade etc.) or may indicate the need for remedial actions.

4.3 Clean-Up Procedures

Clean-up criteria or objectives related to the planned end-use must be known prior to commencing final clean-up activities.

- Check with appropriate government officials for acceptability of clean-up methods.

- Work with local and provincial authorities to determine acceptable offsite locations for waste disposal - do well in advance as this can be time-consuming.

- Some procedures for addressing contamination are:

  i) Hydrogeological study/clean-up

  - If there is obvious leakage, a hydrogeological study will be required. The extent of the problem on and off site should be determined and corrective actions initiated to resolve the problem. Groundwater should be addressed through removal of all floating hydrocarbons and pumping and treating of groundwater for dissolved components if there is potential for impact on users. Treatment options include air stripping, carbon absorption or package biotreatment. In situ options include biodegradation and/or venting. The choice of options will be dependent on both the hydrogeologic setting and the time available.

  ii) Subsurface Soil Contamination

  - The clean-up program should be tailor made for each site.

  - If there is a strong odour and/or sheen on soil in excavations the cleanup techniques may include, but are not restricted to the following:

    1) Attempt to remove odorous patch of soil to a depth of approximately 25 cm in clay (75 cm in sand), and check if problem is eliminated.

    2) If strong odour remains, your hydrogeologist should carry out additional coring to delineate.

3) Soil removed from excavation (and less than 2% mineral oil and grease level) can be spread out (to a depth of 20-25 cm) in a well ventilated, undisturbed area and allowed to aerate for a few days (requires government approval) as long as the hydrocarbons volatilized do not impact neighbours. Take final soil tests from the excavation floor and walls and the treated soil to ensure residual contamination meets requirements (both hydrocarbons and lead.)

Note: if site specific conditions do not permit local aeration, removal to an alternate approved site for aeration should be considered.

Note: Soil greater than 2% should be evaluated for degree of hazard andappropriately disposed.

4) If odour persists onsite, remove soil to appropriate waste treatment or licensed waste site.

Note: any excavations that are to be left open and unattended should be properly fenced.

5) If odour is faint and mineral oil and grease levels in soil are at or less than values given in Attachment 2, put remaining soil back into excavation.

iii) Spill Areas

- For small spill areas identified in the Environmental Investigation (depth unknown), use the same clean-up methods as in (ii).

- If spillage has taken place over a large area additional options may be available including:

  1) Ability to aerate or biologically degrade on site or insitu; or

  2) Transport soils, which cannot be treated on site, to a licensed site. Sample sides and bottom of excavation to ensure all contamination has been addressed. Refill excavation to grade with clean soil.

- If specific automobile additives were spilt, try to identify, run tests if necessary and check established criteria. Remove soil to appropriate waste site if necessary.

- Take "during clean-up" photos.

4.4 Verification of Satisfactory Clean-Up

As soon as the final soil testing shows contaminant levels are at or below the established criteria documentation should be prepared including reference to confirmatory results.

Regulatory agency(ies) must be contacted for agreement that contamination has been cleaned up where rezoning is probable or off site migration has been resolved.

4.5 Sign-Off

- The responsible regulatory agency should be requested to endorse or agree that the clean-up program has resulted in the site meeting their objectives.
  Note: ultimate liability is a site specific consideration.
- Attachment 4 provides a list of specific legislation pertaining to decommissioning of underground storage tanks.

5.0 DISPOSITION OF PROPERTY

- Sale of property; advise purchaser of previous land use and any site restrictions.
- Make available any final hydrogeological/soils studies to purchaser.
- Consider land use restrictions (through caveats on title) if site has been cleaned only to commercial or lesser standards.
- Retain documentation of remedial measures and the final condition of the property, including any endorsement or acknowledgment of cleanup activities from regulatory agencies, on file for the longest practical period.

ATTACHMENT 1

EXAMPLE OF A PRELIMINARY ENVIRONMENTAL INVESTIGATION PROCEDURE

1. Perimeter Investigation

Hand auger (or portable drill) 60 - 100 cm deep probe holes (2-3 cm in diameter) on 6 - 8 m spacing around the perimeter of the site. Upon completion of each hole, recover the soil for analysis (see Guidelines in Attachment 2) and record the hydrocarbon vapour concentrations in hole using a TLV meter or similar (Note: limitations of soil gas surveys as expressed in 4.1 (iii)). If extensive soil contamination, strong odour and/or high vapour concentrations (over 500 ppm), is found, a detailed borehole investigation to further assess sub-soil and groundwater contamination at the property boundary will be needed (see 4 below). If vapour values are 250-500 ppm a site specific decision will have to be made regarding additional studies particularly taking into account future land use.

2. Product Handling/Storage Areas, Building Sub-floors

When the underground tanks are removed, the walls and the base of the excavation are to be inspected for free gasoline, contaminated soil and hydrocarbon vapours. If tank hole examination reveals contamination or if spills are noted in the vicinity of the product handling/storage areas test pits or boreholes penetrating to a minimum depth of 3 m, or to water table, should be developed for the sampling and analysis of subgrade soils, groundwater and soil gas. Measurement of vapour levels below building floors should also be included in the assessment.

3. Optional Piezometer Installations

Install groundwater monitoring wells at the corners of the site or in areas of concern (e.g. adjacent to tanks) both up and down gradient as predicted by site topography and known areas of recharge/discharge to provide an indication of potential contaminant migration.

4. Detailed Sub-Surface Investigation

These activities are initiated only when the above steps are complete and the contamination is deemed significant in relation to the intended or probable future land use.

ATTACHMENT 2

POTENTIAL CLEAN-UP GUIDELINES

		Soil	
	Potable Water	Residential/ Parkland	Commercial/ Industrial
Mineral Oil and Grease	-	2%(1) 1000 ppm(2)	2% 1000 ppm(2)
Lead	.05(3)	500 ppm(4) 200 ppm(2)	1000 ppm(5) 600 ppm(6)
pH	6-8(7)	6-8	6-8
benzene	5 ug/L(8)	.5 ppm(2)	5 ppm(6)
phenol	.10 mg/L(9) .002 mg/L(10)	1 ppm(2) -	10 ppm(6) -
Asbestos	0 preferred	-	-

(1) Ontario phytotoxic safe level weathered oil; 1% if fresh.
(2) Quebec level "B" indicating contamination exists, remedial action probable in residential or farm setting but not in other land uses. "Politique de Rehabilitation des Terrains Contamin s" February 1988. New Brunswick also supports a value similar to Quebec.
(3) Canadian Drinking Water Guidelines; Ontario Ministry of the Environment (MOE) Maximum Acceptable Concentration.
(4) MOE Guideline; reduces to 375 ppm for coarse textured soils based on grazing of animals (coarse textured defined as greater than 76% sand and less than 17% organic matter).
(5) MOE Guideline; reduces to 750 ppm in coarse textured soils.
(6) Quebec level "C".
(7) Some provinces prefer background as a pH standard.
(8) Canadian Drinking Water Guidelines.
(9) Canadian Drinking Water Guidelines.
(10) Maximum desirable concentration related to aesthetic quality in Ontario (MOE).

ATTACHMENT 3

AREAS OF POTENTIAL REGULATORY INPUT/APPROVAL

Slop/Flushing hauling and disposal

Separator sludge hauling and disposal

Contaminated Soils on-site/off-site treatment

Contaminated Soils haulage

Contaminated Soils disposal

Groundwater in situ treatment

Groundwater above ground treatment

Groundwater sewage discharge

Product migrating off-site

Clean-up levels in soil

Tank abandonment

Tank degassing/hauling/disposal

Rezoning

Building Permit

GUIDE TO LEGISLATION PERTAINING TO DECOMMISSIONING
SERVICE STATIONS
AS OF MAY, 1988

	UNDERGROUND STORAGE TANK DECOMMISSIONING			OTHER AREAS RELEVANT TO SERVICE STATIONS	
PROVINCE	SPECIFIC LEGISLATION	DEPARTMENT RESPONSIBLE	AREA OF CONCERN	OTHER LEGISLATION	COMMENTS
ALBERTA	"Alberta Fire Code under "Fire Prevention Act."	Department of Labour. General Safety Service Division. Alberta Fire Prevention Branch.	- tank removal - tank disposal - contaminated soil cleanup - spills/leaks - drainage and waste disposal	- "Hazardous Waste Regulation" under "Hazardous Chemicals Act" - "Clean Water Act"	
BRITISH COLUMBIA	"B.C. Fire Code Regulation" under "Fire Services Act" (based on the "National Fire Code" with some changes), adopted Jan. 87. mainly sec. 4.10. "Withdrawal of storage tanks from service."	Ministry of Municipal Affairs. Office of the Fire Commissioner	- tank removal - tank disposal - spills/leaks - contaminated soil cleanup - drainage and waste disposal	- "Waste Management Act"	
MANITOBA	"Storage and Handling of Gasoline and Associated Products Regulation" under "Clean Environment. Act."	Department of Environment and Workplace Safety and Health. Waste Management Branch	- spills/leaks - tank abandonment - tank removal - environmental cleanup	"Clean Environment Act" - soil pollution - water pollution	"Storage and Handling of Gasoline and Associated Products Regulation" is being revised.
	"Manitoba Fire Code" ("National Fire Code" adopted with amendments)	Department of Labour. Office of the Fire Commissioner	- tank removal - tank disposal - spills/leaks - contaminated soil cleanup - drainage and waste disposal		

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	UNDERGROUND STORAGE TANK DECOMMISSIONING			OTHER AREAS RELEVANT TO SERVICE STATIONS	
PROVINCE	SPECIFIC LEGISLATION	DEPARTMENT RESPONSIBLE	AREA OF CONCERN	OTHER LEGISLATION	COMMENTS
NEW BRUNSWICK	"Petroleum products storage and handling regulations (1987) under "Clean Environment Act" (part 14)	Department of Municipal Affairs and the Environment. Land and Water Management Division, Environmental Protection Branch Petroleum Management Section.	- tank abandonment - tank removal - tank disposal - contaminated soil removal - spills - storage prior to disposal	- "Clean Environment Act" - pollution of environment - discharges - "Water Quality Regulation" under "Clean Environment Act" - water pollution - discharges	
	"Petroleum Storage Tank Decommissioning Process" under "Water Quality Regulation."		- sludge and oily water disposal - tank removal - tank disposal - tank abandonment		
	"National Fire Code of Canada	Department of Municipal Affairs and the Environment. Fire Marshal.	- tank removal - tank disposal - contaminated soil cleanup - spills/leaks - drainage and waste disposal		

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	UNDERGROUND STORAGE TANK DECOMMISSIONING			OTHER AREAS RELEVANT TO SERVICE STATIONS	
PROVINCE	**SPECIFIC LEGISLATION**	**DEPARTMENT RESPONSIBLE**	**AREA OF CONCERN**	**OTHER LEGISLATION**	**COMMENTS**
NEWFOUND-LAND	"Storage and Handling of Gasoline and Associated Products Regulations" under "Department of the Environment Act" sec. 4.5 (amended Dec 1986)	Department of Environment and Lands, Environmental Investigations Division. Industrial Environmental Engineering Division.	- tank abandonment - tank removal - spills - drainage and waste disposal - spills/leaks	- "Waste Material (Disposal) Act"	
	"Fire Prevention Regulations (adopt "National Fire Code".)	Department of Justice. Fire Commissioner's Office	- tank removal - tank disposal - contaminated soil cleanup - spills/leaks - drainage and waste disposal	- "Department of the Environment Act" - soil pollution - water pollution - "Water Protection Act" - water pollution - damaging water supply	
NORTHWEST TERRITORIES	"Fire Prevention Regulations" under "Fire Prevention Act" (adopt "National Fire Code")	Department of Renewable Resources. Safety Division	- tank removal - tank disposal - contaminated soil removal - spills/leaks - drainage and waste disposal	- "Environmental Protection Act" - spills/leaks - environmental cleanup	"Hazardous Substances Act" - in a draft form; will be administered by the Department of Renewable Resources, Pollution Control Division.

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NOVA SCOTIA	Nova Scotia Petroleum Storage Regulation.	Department of the Environment - Field Services Division.	- tank abandonment - tank removal - contaminated soil clean-up	- "Environmental Protection Act" discharging wastes - "Water Act" water pollution/ discharge.	
	"National Fire Code"	Department of Labour. Fire Marshal.	- tank removal - tank disposal - contaminated soil cleanup - spills/leaks - drainage and waste disposal		
ONTARIO	"Gasoline Handling Code (Reg. 439) under "Gasoline Handling Act."	Ministry of Consumer and Commercial Relations. Fuels Safety Branch.	- tank removal - spills/leaks - contaminated soil cleanup	- "Environmental Protection Act" ° Part IX "Spills Regulation" ° Part V "General Waste Management Regulation" - "Ontario Water Resources Act" (water and ground-water pollution)	The National Fire Code does not apply; applicable only to flammable materials other than gasoline. The Ontario Ministry of the Environment is responsible for "Environmental Protection Act" and "Ontario Water Resources Act"

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PRINCE EDWARD ISLAND	"Petroleum Storage Tank Regulations" under "Environmental Protection Act"	Department of Community and Cultural Affairs. Water Resources Branch	- tank removal - tank disposal - leakage/spillage - abandoned well plugging - contaminated soil cleanup - drainage and waste disposal	- "Environmental Protection Act"	The PEI Public Utilities Commission should be made aware of all decommissioned service stations
	"National Fire Protection Association" codes 30 and 30A	Department of Community and Cultural Affairs. Water Resources Branch and Fire Marshal's Office	- specific fire safety concerns		
QUEBEC	"Regulation Respecting the Application of the Petroleum Products Trade Act" under "Petroleum Products Trade Act"	Ministry of Energy, Mines and Resources. Distribution Department	- tank abandonment - tank removal - tank disposal - spillage (onsite) - tank re-use	"Hazardous Waste Regulation" under "Environment Quality Act" - storage - transportation - disposal - spills - "Environmental Quality Act"	"Regulation Respecting the Application of the Petroleum Products Trade Act". March 30-88 The "Building Code" is also applicable; it refers to the "National Fire Code", which cannot be used alone because it is not in French. Quebec is drafting "A Technical Guide on Environmental Aspects for Service Stations" that will review all legislation applicable to service stations and provide guidelines on preventative measures and decommissioning requirements. It is due in Spring 1989.

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SASKATCH-EWAN	Some municipalities adopted the "National Fire Code" as a bylaw; also used is NFPA Standard 30 for removal of abandoned tanks.	Department of the Environment. Fire Commissioner's Office	- tank removal - tank disposal - contaminated soil cleanup - spills/leaks - drainage and waste disposal	- "Environment Management and Protection Act" - "Environmental Spill Control Regulations under Department of the Environment Act" - spills	Saskatchewan is in the process of adopting the "National Fire Code" (1985) provincially "Hazardous Substances Regulation" under "Environmental Management and Protection Act" - in a draft form; will be administered by Department of the Environment. Air and Land Protection Branch.
YUKON	"National Fire Code"	Department of Community & Transportation Services. Protective Services. Fire Marshal's Office	- tank removal - tank disposal - contaminated soil cleanup - spills/leaks - drainage and waste disposal		